

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings of claims in the application:

Listing of Claims:

- 1 1. (Previously presented) A method for reverse transcribing an RNA, that
2 comprises:
 - 3 (a) providing a reverse transcription reaction mixture comprising said RNA, a
4 primer, a divalent cation, and a mutant thermoactive DNA polymerase, wherein said mutant
5 DNA polymerase is characterized in that
 - 6 i) in its native form said DNA polymerase comprises an amino acid
7 sequence that is SEQ ID NO:1;
 - 8 ii) the amino acid at position 2 of said amino acid sequence is S or A and
9 the amino acid at position 5 of said amino acid sequence is L or I; and
 - 10 iii) the amino acid at position 4 of said amino acid sequence is mutated in
11 comparison to said native sequence to an amino acid other than E, A, G, or P; and
 - 12 (b) treating said reaction mixture at a temperature sufficient for said mutant
13 DNA polymerase to initiate synthesis of an extension product of said primer to provide a cDNA
14 molecule complementary to said RNA.
- 1 2. (Previously presented) The method of Claim 1, wherein said amino acid
2 sequence is SEQ ID NO:2, the amino acid at position 3 of said amino acid sequence is Q or G,
3 and the amino acid at position 6 of said amino acid sequence is S or A.
- 1 3. (Original) The method of Claim 1, wherein said amino acid sequence is
2 SEQ ID NO:3.

1 4. (Previously presented) The method of Claim 1, wherein said amino acid
2 sequence is SEQ ID NO:4, and the amino acid at position 3 is Q or G.

1 5-7 (Cancelled)

1 8. (Original) The method of Claim 1, wherein said mutant DNA polymerase
2 is thermostable.

1 9. (Original) The method of Claim 1, wherein said DNA polymerase is a
2 mutant form of a *Thermus* species DNA polymerase.

1 10. (Original) The method of Claim 1, wherein said DNA polymerase is a
2 mutant form of *Thermus thermophilus* DNA polymerase or *Thermus aquaticus* DNA
3 polymerase.

1 11. (Original) The method of Claim 1, wherein said temperature of said
2 reaction mixture in step (b) is between 40°C and 80°C.

1 12. (Original) The method of Claim 1, wherein said amino acid at position 4
2 of said amino acid sequence is mutated in comparison to said native sequence to an amino acid
3 other than E, A, G, P, Q, or D.

1 13. (Previously presented) A method for reverse transcribing an RNA, that
2 comprises:

3 (a) providing a reverse transcription reaction mixture comprising said RNA, a
4 primer, Mg^{+2} , and a mutant thermoactive DNA polymerase, wherein said mutant DNA
5 polymerase is characterized in that

6 i) in its native form said DNA polymerase comprises an amino acid sequence that
7 is SEQ ID NO:1;

8 ii) the amino acid at position 2 of said amino acid sequence is S or A and the
9 amino acid at position 5 of said amino acid sequence is L or I; and

10 iii) the amino acid at position 4 of said amino acid sequence is mutated in
11 comparison to said native sequence to an amino acid other than E, A, G, or P; and

12 (b) treating said reaction mixture at a temperature sufficient for said mutant
13 DNA polymerase to initiate synthesis of an extension product of said primer to provide a cDNA
14 molecule complementary to said RNA.

1 14. (Previously presented) The method of Claim 13, wherein said amino acid
2 sequence is SEQ ID NO:2, the amino acid at position 3 of said amino acid sequence is Q or G,
3 and the amino acid at position 6 of said amino acid sequence is S or A.

1 15. (Original) The method of Claim 13, wherein said amino acid sequence is
2 SEQ ID NO:3.

1 16. (Previously presented) The method of Claim 13, wherein said amino acid
2 sequence is SEQ ID NO:4, and the amino acid at position 3 is Q or G.

1 17-19. (Cancelled)

1 20. (Original) The method of Claim 13, wherein said mutant DNA
2 polymerase is thermostable.

1 21. (Original) The method of Claim 13, wherein said DNA polymerase is a
2 mutant form of a *Thermus* species DNA polymerase.

1 22. (Original) The method of Claim 13, wherein said DNA polymerase is a
2 mutant form of *Thermus thermophilus* DNA polymerase or *Thermus aquaticus* DNA
3 polymerase.

1 23. (Original) The method of Claim 13, wherein said temperature of said
2 reaction mixture in step (b) is between 40°C and 80°C.

1 24. (Original) The method of Claim 13, wherein said amino acid at position 4
2 of said amino acid sequence is mutated in comparison to said native sequence to an amino acid
3 other than E, A, G, P, Q, or D.

1 25. (Original) A method for amplifying an RNA, that comprise:

2 (a) reverse transcribing said RNA according to a method of Claim 1 to
3 provide a cDNA;

4 (b) amplifying said cDNA.

1 26. (Original) A method of Claim 25, wherein in step (b) said amplifying is
2 carried out using a polymerase chain reaction.

1 27. (Original) A method for amplifying an RNA, that comprise:

2 (a) reverse transcribing said RNA according to a method of Claim 13 to
3 provide a cDNA;

4 (b) amplifying said cDNA.

1 28. (Original) A method of Claim 27, wherein in step (b) said amplifying is
2 carried out using a polymerase chain reaction.

1 29. (Previously presented) A method for amplifying an RNA using a single-
2 enzyme reverse transcription/amplification reaction, that comprises:

3 (a) providing an amplification reaction mixture comprising said RNA, a pair
4 of primers, a divalent cation, and a mutant thermostable DNA polymerase, wherein said mutant
5 DNA polymerase is characterized in that

6 i) in its native form said DNA polymerase comprises an amino acid sequence that
7 is SEQ ID NO:1;

8 ii) the amino acid at position 2 of said amino acid sequence is S or A and the
9 amino acid at position 5 of said amino acid sequence is L or I; and

10 iii) the amino acid at position 4 of said amino acid sequence is mutated in
11 comparison to said native sequence to an amino acid other than E, A, G, or P; and

12 (b) treating said reaction mixture at a temperature sufficient for said mutant
13 DNA polymerase to initiate synthesis of an extension product of said primer to provide a cDNA
14 molecule complementary to said RNA;

15 (c) treating said reaction mixture at an appropriate temperature for said
16 mutant DNA polymerase to initiate synthesis of an extension product of said second primer to
17 provide a double-stranded cDNA molecule; and

18 (d) amplifying said double-stranded cDNA molecule of step (c) by a
19 polymerase chain reaction.

1 30. (Previously presented) The method of Claim 29, wherein said amino acid
2 sequence is SEQ ID NO:2, the amino acid at position 3 of said amino acid sequence is Q or G,
3 and the amino acid at position 6 of said amino acid sequence is S or A.

1 31. (Original) The method of Claim 29, wherein said amino acid sequence is
2 SEQ ID NO:3.

1 32. (Previously presented) The method of Claim 29, wherein said amino acid
2 sequence is SEQ ID NO:4, and the amino acid at position 3 is Q or G.

1 33-35. (Cancelled)

1 36. (Original) The method of Claim 29, wherein said mutant DNA
2 polymerase is thermostable.

1 37. (Original) The method of Claim 29, wherein said DNA polymerase is a
2 mutant form of a *Thermus* species DNA polymerase.

1 38. (Original) The method of Claim 29, wherein said DNA polymerase is a
2 mutant form of *Thermus thermophilus* DNA polymerase or *Thermus aquaticus* DNA
3 polymerase.

1 39. (Original) The method of Claim 29, wherein said temperature of said
2 reaction mixture in step(b) is between 40°C and 80°C.

1 40. (Original) The method of Claim 29, wherein said amino acid at position 4
2 of said amino acid sequence is mutated in comparison to said native sequence to an amino acid
3 other than E, A, G, P, Q, or D.

1 41. (Previously presented) A method for amplifying an RNA using a single-
2 enzyme reverse transcription/amplification reaction, that comprises:

3 (a) providing an amplification reaction mixture comprising said RNA, a pair
4 of primers, Mg⁺², and a mutant thermostable DNA polymerase, wherein said mutant DNA
5 polymerase is characterized in that

6 i) in its native form said DNA polymerase comprises an amino acid
7 sequence that is SEQ ID NO: 1;

8 ii) the amino acid at position 2 of said amino acid sequence is S or A and
9 the amino acid at position 5 of said amino acid sequence is L or I; and

10 iii) the amino acid at position 4 of said amino acid sequence is mutated in
11 comparison to said native sequence to an amino acid other than E, A, G, or P; and

12 (b) treating said reaction mixture at a temperature sufficient for said mutant
13 DNA polymerase to initiate synthesis of an extension product of said primer to provide a cDNA
14 molecule complementary to said RNA;

15 (c) treating said reaction mixture at an appropriate temperature for said
16 mutant DNA polymerase to initiate synthesis of an extension product of said second primer to
17 provide a double-stranded cDNA molecule; and

18 (d) amplifying said double-stranded cDNA molecule of step (c) by a
19 polymerase chain reaction.

1 42. (Previously presented) The method of Claim 41, wherein said amino acid
2 sequence is SEQ ID NO:2, the amino acid at position 3 of said amino acid sequence is Q or G,
3 and the amino acid at position 6 of said amino acid sequence is S or A.

1 43. (Original) The method of Claim 41, wherein said amino acid sequence is
2 SEQ ID NO:3.

1 44. (Previously presented) The method of Claim 41, wherein said amino acid
2 sequence is SEQ ID NO:4, and the amino acid at position 3 is Q or G.

1 45-47. (Cancelled)

1 48. (Original) The method of Claim 41, wherein said mutant DNA
2 polymerase is thermostable.

1 49. (Original) The method of Claim 41, wherein said DNA polymerase is a
2 mutant form of a *Thermus* species DNA polymerase.

1 50. (Original) The method of Claim 41, wherein said DNA polymerase is a
2 mutant form of *Thermus thermophilus* DNA polymerase or *Thermus aquaticus* DNA
3 polymerase.

1 51. (Original) The method of Claim 41, wherein said temperature of said
2 reaction mixture in step (b) is between 40°C and 80°C.

1 52. (Original) The method of Claim 41, wherein said amino acid at position 4
2 of said amino acid sequence is mutated in comparison to said native sequence to an amino acid
3 other than E, A, G, P, Q or D.

1 53. (Previously presented) A method for reverse transcribing an RNA, that
2 comprises:

3 (a) providing a reverse transcription reaction mixture comprising said RNA, a
4 primer, a divalent cation, and a thermoactive DNA polymerase, wherein said DNA polymerase is
5 characterized in that

6 i) in is native form said DNA polymerase comprises an amino acid
7 sequence that is SEQ ID NO:1;

8 ii) the amino acid at position 2 of said amino acid sequence is S or A and
9 the amino acid at position 5 of said amino acid sequence is L or I; and

10 iii) the amino acid at position 4 of said amino acid sequence is other than
11 E, A, G, or P; and

12 (b) treating said reaction mixture at a temperature sufficient for said DNA
13 polymerase to initiate synthesis of an extension product of said primer to provide a cDNA
14 molecule complementary to said RNA.

1 54. (Previously presented) The method of Claim 53, wherein said amino acid
2 sequence is SEQ ID NO:5 and the amino acid at position 7 of said amino acid sequence is V or I.

1 55. (Previously presented) The method of Claim 53, wherein said amino acid
2 sequence is SEQ ID NO:6.

1 56. (Previously presented) The method of Claim 53, wherein said amino acid
2 sequence is SEQ ID NO:7 and the amino acid at position 8 of said amino acid sequence is S or T.

1 57. (Previously presented) A method for reverse transcribing an RNA, that
2 comprises:

3 (a) providing a reverse transcription reaction mixture comprising said RNA, a
4 primer, Mg^{+2} , and a thermoactive DNA polymerase, wherein said DNA polymerase is
5 characterized in that

6 i) in its native form said DNA polymerase comprises an amino acid
7 sequence that is SEQ ID NO:1;

8 ii) the amino acid at position 2 of said amino acid sequence is S or A and
9 the amino acid at position 5 of said amino acid sequence is L or I; and

10 iii) the amino acid at position 4 of said amino acid sequence is other than
11 E, A, G, or P; and

12 (b) treating said reaction mixture at a temperature sufficient for said DNA
13 polymerase to initiate synthesis of an extension product of said primer to provide a cDNA
14 molecule complementary to said RNA.

1 58. (Previously presented) The method of Claim 57, wherein said amino acid
2 sequence is SEQ ID NO:5 and the amino acid at position 7 of said amino acid sequence is V or I.

1 59. (Previously presented) The method of Claim 57, wherein said amino acid
2 sequence is SEQ ID NO:6.

1 60. (Previously presented) The method of Claim 57, wherein said amino acid
2 sequence is SEQ ID NO:7 and the amino acid at position 8 of said amino acid sequence is S or T.

1 61. (Previously presented) A method for amplifying an RNA using a single-
2 enzyme reverse transcription/amplification reaction, that comprises:

3 (a) providing an amplification reaction mixture comprising said RNA, a pair
4 of primers, a divalent cation, and a thermostable DNA polymerase, wherein said DNA
5 polymerase is characterized in that

6 i) in its native form said DNA polymerase comprises an amino acid
7 sequence that is SEQ ID NO:1;

8 ii) the amino acid at position 2 of said amino acid sequence is S or A and
9 the amino acid at position 5 of said amino acid sequence is L or I; and

10 iii) the amino acid at position 4 of said amino acid sequence is other than
11 E, A, G, or P; and

12 (b) treating said reaction mixture at a temperature sufficient for said DNA
13 polymerase to initiate synthesis of an extension product of said primer to provide a cDNA
14 molecule complementary to said RNA;

15 (c) treating said reaction mixture at an appropriate temperature for said DNA
16 polymerase to initiate synthesis of an extension product of said second primer to provide a
17 double-stranded cDNA molecule; and

18 (d) amplifying said double-stranded cDNA molecule of step (c) by a
19 polymerase chain reaction.

1 62. (Previously presented) The method of Claim 61, wherein said amino acid
2 sequence is SEQ ID NO:5 and the amino acid at position 7 of said amino acid sequence is V or I.

1 63. (Previously presented) The method of Claim 61, wherein said amino acid
2 sequence is SEQ ID NO:6.

1 64. (Previously presented) The method of Claim 61, wherein said amino acid
2 sequence is SEQ ID NO:7 and the amino acid at position 8 of said amino acid sequence is S or T.

1 65. (Previously presented) A method for amplifying an RNA using a single-
2 enzyme reverse transcription/amplification reaction, that comprises:

3 (a) providing an amplification reaction mixture comprising said RNA, a pair
4 of primers, Mg²⁺, and a thermostable DNA polymerase, wherein said DNA polymerase is
5 characterized in that

6 i) in its native form said DNA polymerase comprises an amino acid
7 sequence that is SEQ ID NO:1;

8 ii) the amino acid at position 2 of said amino acid sequence is S or A and
9 the amino acid at position 5 of said amino acid sequence is L or I; and

10 iii) the amino acid at position 4 of said amino acid sequence is other than
11 E, A, G, or P; and

12 (b) treating said reaction mixture at a temperature sufficient for said DNA
13 polymerase to initiate synthesis of an extension product of said primer to provide a cDNA
14 molecule complementary to said RNA;

15 (c) treating said reaction mixture at an appropriate temperature for said DNA
16 polymerase to initiate synthesis of an extension product of said second primer to provide a
17 double-stranded cDNA molecule; and

18 (d) amplifying said double-stranded cDNA molecule of step (c) by a
19 polymerase chain reaction.

1 66. (Previously presented) The method of Claim 65, wherein said amino acid
2 sequence is SEQ ID NO:5 and the amino acid at position 7 of said amino acid sequence is V or I.

1 67. (Previously presented) The method of Claim 65, wherein said amino acid
2 sequence is SEQ ID NO:6.

1 68. (Previously presented) The method of Claim 65, wherein said amino acid
2 sequence is SEQ ID NO:7 and the amino acid at position 8 of said amino acid sequence is S or T.